

## CLAIMS:

1. An X-ray apparatus which includes an X-ray source (2) for the emission of a conical X-ray beam and an X-ray detector (3) for the multiple detection of the X-rays after their passage through an object to be examined, being arranged along an object axis (4), while the X-ray source (2) and the X-ray detector (3) are displaced along a trajectory, characterized in that the apparatus includes means (12, 14, 15) for changing the position and/or the orientation of the X-ray detector (3) relative to the X-ray source (2) and also a control unit (11) for displacing the X-ray source (2) and the X-ray detector (3) along the trajectory and for controlling the position and/or orientation of the X-ray detector (3) during the detection of the X-rays.

2. An X-ray apparatus as claimed in claim 1, characterized in that it includes a flat, rectangular X-ray detector (3) which is rotatable around the connecting line (13) extending between the focal point of the X-ray source (2) and the center of the X-ray detector (3), the control unit (11) for controlling the orientation of the X-ray detector (3) being constructed in such a manner that one of the edges (31, 32) of the X-ray detector (3) is always situated at right angles to the object axis (4) while the trajectory is being completed.

3. An X-ray apparatus as claimed in claim 2, characterized in that for circular trajectories the control unit (11) is arranged to adjust the orientation of the X-ray detector (3) prior to the beginning of the completion of each trajectory in such a manner that one of the edges (31, 32) of the X-ray detector (3) is situated at right angles to the object axis (4) and that the orientation of the X-ray detector (3) is kept constant while the trajectory is being completed.

4. An X-ray apparatus as claimed in claim 2, characterized in that the control unit (11) is arranged to adjust the orientation in response to any change of the position of the X-ray source (2) while a trajectory is being completed.

5. An X-ray apparatus as claimed in claim 1 or 2, characterized in that the means (14, 15) for changing the position and/or the orientation of the X-ray detector (3) are constructed in such a manner that the angle between the central ray (16) of the X-ray beam and the connecting line (13) extending between the focal point of the X-ray source (2) and the center of the X-ray detector (3) can assume a value other than zero, and that the control unit (11) is constructed in such a manner that at least two different angular positions are adjusted during the detection of the X-rays.

6. An X-ray apparatus as claimed in claim 5, characterized in that the X-ray detector (3) is arranged on one or more rails (14) in order to change its position and/or its orientation.

7. An X-ray apparatus as claimed in claim 6, characterized in that in order to change its position and/or its orientation, the X-ray detector (3) is mounted on a rail (14) which extends essentially perpendicularly to the central ray (16), notably on a rail which is curved around the focal point of the X-ray source (2).

8. An X-ray apparatus as claimed in claim 5, characterized in that the X-ray detector (3) is a flat, rectangular X-ray detector.

9. An X-ray apparatus as claimed in claim 5, characterized in that the control unit (11) is arranged for the multiple displacement of the X-ray source (2) along a trajectory during the irradiation of the object to be examined and for the adjustment of a different angular position of the X-ray detector (3) during each completion of the same trajectory.

10. A method of forming X-ray images by means of an X-ray apparatus, notably an apparatus as claimed in claim 1, which includes an X-ray source (2) for the emission of a conical X-ray beam and an X-ray detector (3) for the detection of the X-rays after their passage through an object to be examined, being arranged along an object axis (4), while the X-ray source (2) and the X-ray detector (3) are displaced along a trajectory, characterized in that the position and/or the orientation of the X-ray detector (3) relative to the X-ray source (2) is changed during the detection of the X-rays in order to maximize the reconstructable examination zone.

11. A computer program with programming means for making a computer control an X-ray apparatus as claimed in claim 1 in conformity with the method claimed in claim 10 when the computer program is executed on a computer.